Aspects of Digital Art

ASPECTS OF DIGITAL ART
Loren Means

Digital art is all-pervasive, and has two strong implications, like electronic music. On the one hand, it allows for the proliferation of innovation–images can be created that have never been seen before, and plenty of them. Generative art instigators in popular programs like Photoshop can produce such a cascade of possibilities that choosing among them is extremely difficult–information overload predominates.

On the other hand, digital art allows for easy reproduction of the real world, and manipulation of that imagery toward the creation of a new hyper-reality that can be indistinguishable from the real, and sometimes come to supplant it. Reference is constantly made to Walter Benjamin's statement in his famous essay, "The Work of Art in the Age of Mechanical Reproduction" that easy reproducibility robs an original work of art of its "aura." Digital manipulation has robbed photography of its original credibility as a purveyor of truth. T. Jefferson Parker's novel *Where Serpents Lie* tells of a cop whose life and career are nearly ruined by digitally-doctored photographs. Anything can be grafted onto anything else, like "sampling" in the music world.

On still another hand, an image of a document differs from the original document in that it can be imported into a word processor, but can't be modified in the word processor. It has to be brought into image manipulation software to do that–and it's easier to just return to the original document, edit it, and then resave it as an image.

This combination of creation of new realities and transformations of existing realities, with the results available for transmission in emails and on telephones is the ethos of today's technological world, and new implications are being implemented constantly. These are heady times.

I met Dorothy Simpson Krause, a long-time YLEM member and supporter, at a graphics conference in San Francisco's Moscone Center in 2001. Krause is a member of a group called Digital Atelier, with Karin Schminke and Bonny Pierce Lhotka, and they have written *Digital Art Studio: Techniques for Combining Inkjet Printing with Traditional Art Materials*, a definitive work on transferring digital art to canvas, fabrics, and innumerable other art supports. They also contributed the three-dimensional lenticular graphic in collaboration with Mirage, Inc. that graced the cover of the YLEM Journal's Twentieth Anniversary issue, Vol. 22 #2, (2002). In July 1997, Krause organized "Digital Atelier: A printmaking studio for the 21st century" at the Smithsonian American Art Museum and was an artist-in-residence there for 21 days. For that work she and her colleagues received a Smithsonian Technology in the Arts Award. Recently Krause and I were in a digital art show together in Mountain View, CA with several other digital artists. This essay is from a book Krause is writing that is designed for artists who are interested in making books and book-like forms.

Donald Kuspit is one of America's most distinguished art critics. Winner of the prestigeous Frank Jewett Mather Award for Distinction in Art Criticism (1983), given by the College Art Association, Professor Kuspit is a Contributing Editor at *Artforum, Sculpture*, and *Tema Celeste* magazines, the Editor of *Art Criticism*, and on the advisory board of *Centennial Review*. He has doctorates in philosophy (University of Frankfurt) and art history (University of Michigan). My favorite book by Donald Kuspit is his critical biography of that seminal art critic of abstract expressionism and "color-field" painting, *Clement Greenburg, Art Critic* (1979). One of his more recent volumes is the monograph of a show called "The Body Image in Cristobal Gabar," also curated by Kuspit (2005). He is also the author of *Health and Happiness in 20th-Century Avant-garde Art* (1996), *Idiosyncratic Identities: Artists at the End of the Avant-Garde* (1996), and *Psychostrategies of Avant-Garde Art* (2000). When I saw his article relating digital art to pointillism on www.artnet.com, I had to share it with YLEM Journal readers, and am grateful for his permission to reprint it.

YLEM FORUM

YLEM Forum: Inventing at the Exploratorium
Thurs., July 12, 8pm
RX Gallery and Art Bar
132 Eddy St., San Francisco, CA 94102

Learn about ingenious Exploratorium exhibits that are still being developed by Charles Sowers and Shawn Lani. The Exploratorium is unusual in that visitors can look over into the exhibit development area, which gives them the real feeling that great ideas don't just drop from heaven, but are products of a lot of exploration and lab work. Two of the builders will share their process with us.

Charles Sowers and Shawn Lani are artists and senior exhibit developers at the Exploratorium. Their work focuses on the immediate and direct presentation of real physical phenomena of striking visual beauty or emotional impact. Phenomena explored by Charles and Shawn includes water freezing, turbulence in fluids, fluidized beds of sand, dry ice comets, intriguing patterns in ferromagnetic fluid, and much more.

YLEM Forum: Visual Music
Thurs., September 13, 8pm
RX Gallery and Art Bar
132 Eddy St., San Francisco, CA 94102

"Visual Music" will explore the relationship between sound and image in contemporary experimental film practice. Daniel Shulman-Means, from New York City, will show a silent film and a film with audio dialog and music, to point up the differences between the two approaches to the film medium. Three Bay Area filmmakers, Douglas Katelus, Loren Means, and Theresa Wong, will present their films and create improvised live music sound tracks in real time.

In addition, the Visual Music program will include Selections from the 2007 Northeastern University Visual Music Marathon, a group of short computer animations with either music by the filmmaker or in collaboration with composers. These films come from all over the world. Included will be films by Jean Detheux from Canada, Fran Hartnett and Maura McDonnell from Ireland, and John Banks, Brett Battey, Brian Evans, Betsy Kopmar, Stephanie Maxwell, Dennis H. Miller, Nathaniel Resnikoff, Suzie Silver, and Pierce Warnecke, all from the USA.

Daniel Shulman-Means recently moved from San Francisco to New York City, where he completed a program at the New York Film Academy. He has exhibited his digital art at galleries in New York, California, and Nebraska, and written feature stories on the arts for GTWeekly in Santa Cruz, CA.

Douglas Katelus is a San Francisco-based filmmaker and musician. He has produced several Documentary and experimental shorts that have screened throughout the U.S.A. Aside from making movies, Douglas also co-curates an experimental film show titled "Pathological Rhetoric" that regularly showcases local and worldwide filmmakers.

Loren Means founded the f8 Filmmaker's Co-operative in the Sixties, and won a prize at the Saginaw 8mm Film Festival in 1968. He has shown his films at the Exploratorium, Artists' Television Access, New Nothing Theater, and RX Gallery. His sound tracks are drawn from music played in improvising groups appearing in the Seventies.

Theresa Wong completed an MFA in performance at Mills College in Oakland, CA. As a cellist and vocalist, her current work spans the areas of improvisation, composition, video, performance art, and large-scale performance pieces. She recently curated a show of acoustic songs at Maybeck Recital Hall in Berkeley, CA.

BOOK + ART
Dorothy Simpson Krause
http://www.dotkrause.com

Introduction
I recently began writing a book designed for artists who are interested in making books and book-like forms. In part, this article is extracted from the content of that book.

A painter by training and collage-maker by nature, the computer is my primary art-making tool. I work with large-scale mixed media pieces, artist books

Vietnam Journal ©1998, 54 pages,
6.375" x 6.5" collaged journal

and book-like objects that bridge between these two forms.

Vietnam Journal, 1998
My involvement with making books began in 1998 on a trip to Vietnam. I gathered ephemera along the way —scraps of cloth, gold washed joss paper, medals, rubber stamps—whatever I could incorporate into a purchased journal I carried with me to record my written impressions.

When I returned I scanned the pages of the journal into the computer, combined them with photographs, printed them on film and transferred them, as monotypes to handmade paper. The journal served both as a work of art in its own right and as a source of imagery for a series of 16 digital monotypes, 22" x 30" on handmade papers.

Through the years I have continued to use journals as an inspiration for other work and have also been drawn to making artist's books. As books have become an increasingly important part of my work, I have focused on learning traditional book-making processes and adapting them to meet my needs as an artist. In the past decade I have made more than 50 books using inkjet printing and traditional art ma-

A Scrap of Cloth ©1998, 22" x 30"
Digital Monotype

terials. Although each book is a work of art, for the purpose of this article, books are being treated as a separate category so that I can discuss some of the art related to them. Many of my books are made when I am traveling. Working in the evenings, I incorporate the materials I've found during the day. A trip has a finite period of time and when I return I know my book should be essentially completed, so I have a special impetus to finish the task.

Flint 28" x 35" ©2000, inkjet print on textured nonwoven fabric with encaustic and collage

Journey of the Spirit: Tibet, 2000

The series, *Journey of the Spirit: Tibet,* began with a large book of handmade paper purchased in Nepal to record my impressions and make collages from materials gathered during the trip. I spent all of the year following my return trying unsuccessfully to sort

Cuba: History Rewritten ©2001 55 pages 6.25" x 6.25" Mixed media collage in brown paper cover with blackcloth spine and hand fishing line.

through the emotional impact and to capture the spirit of Tibet. It was only when I tore the pages from the journal, obliterated the writing and rubbed out much of what had been done, that the work began to reflect the experience. Many layers of encaustic and oils gave the effect of yak butter and smoke; a deep glow beneath decay and destruction. I scanned the images and combined them with photographs to complete the 6 images in the series.

Cuba—History Rewritten, 2001

In 2001, shortly after I arrived in Cuba, I found a history of the island published in Havana in 1925 —prior to Castro. I began to focus on the differing perspectives authors bring to their accounts and how time and political persuasion affect, counteract and

Promised Land ©2001, 32 pages, 6.65" x 5" Mixed media collage in commercial blank leather book with metal found object on cover

obliterate viewpoints. The pages from this and other books and periodicals, Communist manifestoes, published letters, State Department brochures, poems and newspaper clippings, became the primary components in my journal, *Cuba—History Rewritten*. It was a palimpsest, written, drawn, erased, crossed out and reworked repeatedly with remnants of erasures still visible.

Legacy of Shame ©2001, 12"x 24" diptych, collaged inkjet print on multiple papers on plaster

Promised Land, 1©2001, 16" x 20", inkjet print with silver leaf and embedded lenticular print

When I returned to my studio, instead of incorporating the journal pages with photographs as I had done in the past, I scanned and began printing the journal pages on a wide range of materials. Often I printed on sheer papers and layered them physically so that they became translucent book pages.

As I was working, I had an opportunity to use the Encad 880 printer, which prints on surfaces up to 1/2' in depth including birch bark, corrugated cardboard, wood and cork. This printer enabled me to use substrates I wouldn't have otherwise been able to consider and to capture the abraded, worn, tattered, gritty and patined surfaces so much a part of my experience in Cuba and so appropriate for this series. The one-of-a-kind mixed media pieces are 12" x 24" diptychs (12"x12" each page). They are all ink jet prints combined with traditional art materials.

Promised Land, 2001

One of the recurring themes in my work is my attempt to understand what we profess to believe, why we feel we can impose our beliefs upon others and the effects of our imposition. On September 11, 2001, when terrorists hijacked planes and flew into the World Trade Center and the Pentagon, I was in the Middle East on my continuing quest to understand why, in the name of religion, one would kill another who did not share their beliefs.

The evening before I had crossed the border to Israel from Jordan, where I had been photographing Petra. The collaged journal I kept during that time had been titled *Promised Land*. After the 11th the journal changed focus and took a darker turn.

The book, *Promised Land*, also became a series of 20 mixed media pieces printed 16" x 20" on inkjet and uv cured flatbed printers. The namesake piece, *Promised Land*, replaced a newspaper photograph with a lenticular showing the collapsing of the World Trade Center towers.

Body +Soul, 2002

The content for a series may be suggested by a found object, a movie, book or photograph. *Body + Soul* began with a photo shoot of twin performance artists, Emily and Abigail Taylor. The series includes a several group of prints printed on inkjet printers and a Zund uv cured flatbed printer and two books.

One of the pieces, *In the Name of the Mother*, was a

In the Name of the Mother ©2002, 44" x 38" x 3", Digital transfer to copper (destroyed)

India ©2004, 124 pages 7.25" x 4.75" Mixed media journal

Flag ©2005 24" x 32" UV cured flatbed print on brown Indian Bagasse chine colle to Reeves BFK (from the series Jewel)

digital transfer to a large two part copper pan that was originally used to hold potted plants in front of a bay window. The image was printed on clear film and transferred to the gelatin-like surface of rabbit-skin glue poured onto the copper. As it dried the glue hardened and bonded the image to the copper. After several months in my basement studio it was hung at the Danforth Museum of Art. One day, early in the exhibition, I got a call telling me that the image was peeling off the copper. Their air conditioning wasn't working properly and the heat had expanded the copper, cracking the glue and releasing the image from

the trip and three that were completed immediately on my return.

The 8 pieces in the series *Jewel* were made from the journal *India*. Handmade brown Indian bagasse with heavily deckled edges had been shipped to my studio from Jaipur. It was cut to simulate the two pages of a book and adhered to 24" x 32" Arches paper and printed on a Vutek uv cured flatbed printer. Gold and silver leaf, colored pencil and collage were added to the prints. The series of printed images were photographed for incorporation into a flipbook and the

City ©2005 36" x 36" UV cured flatbed print on Plexiglas over aluminum with paint, and silver leaf on back of Plexiglas (from the series Passages)

Ascending ©2005 24" x 24" UV cured flatbed print on Dibond (from the series Reflective Vision)

the surface. Since it was the centerpiece of the show and the image on the invitation, I repaired it semi-adequately with gel medium. After the show closed, the image was removed from the copper pieces so they may someday be recycled for a new use. The book, *Lamentations*, is a small version of the destroyed piece.

India, Jewel, Passages and Relective Visions, 2004
In the winter of 2004 I went to Mumbai (Bombay), Jaipur, Agra, Delhi, Chennai and Goa. A collaged journal, called *India*, incorporated ephemera I collected during the journey. I also found components for four additional books, one that was made during

"page turning" presentation became another iteration of the art-making process (see http://www.dotkrause. com/FlipBook/template.htm).

Two additional series were related to photographs taken on this trip, *Passages* and *Reflective Vision*. The pieces in *Passages* are mixed media assemblages printed on recycled copper, brass, lead, aluminum, Plexiglas, wood and paper using uv cured flat-bed printers with varying head clearance. The images in *Reflective Vision* are luminous—printed on aluminum and translucent banner material.

Ars Longa—Vita Brevis, 2006

The books and book-like pieces in *Ars Longa—Vita Brevis*, were created during an Artist-in-Residency at Harvard Medical School's Countway Library. The work produced was as widely varied as the source material, incorporating photographs of their anatomical specimens, medical artifacts, rare books and manuscripts.

Braun Box ©2006 7.25" x 7.25" x 2.75" Inkjet print on paper with encaustic on and in wood box

Man ©2006, 11.5" x 10.5" x 10.5", (6 images, 6" x 4.5" each) inkjet print on clear film in vintage holder

Tabula ©2006 7.25" x 13.75" x 4.25" Inkjet print on paper adhered to shaped wood box

Gyroscope ©2006 10" x 20" x 3" (diptych) Inkjet print on clear film and paper, gyroscope, box, wood

9/11 + 5, 2006

On the fifth anniversary of the terrorist attack I made *9/11 + 5* to protest the war in Iraq. The hot red and orange paintings have explosive marks and flag-like collagraph prints. I scanned the finished pieces and in Photoshop added text. The pages with text were incorporated into a "page turning" flipbook, (see http://www.dotkrause.com/FlipBook%20911/template.htm). The related text layers were inkjet printed on clear film and transferred into the book using gel medium as the transfer agent.

9/11+5 ©2006, 26 pages, 5.75" x 5.5", Drum leaf book bind-ing with acrylic paste paint and collagraph printed pages and inkjet transferred text. Ceramic covers painted with acrylic and red kangaroo spine.

Sacred Megaliths, 2007

Working with a wide range of materials and technolo-gies allows me to explore concepts in multiple ways, to work recursively, and to utilize a body of work to create variations of projects. *Sacred Megaliths* is a see-through book/ box using a lenticular print, *Stonehenge*, from a 1999 series called "timeXposure". It was trans-lucent and large enough to yield four pages that were placed in a black wooden picture frame. In addition to the movement and depth created by the lenticular process, the light passing through the images creates an additional relationship that is best viewed with the

the towers collapsed

Sacred Megaliths ©2007 11" x 9" x 2.5"

Stonehenge with light

piece at eye level and light coming from behind.

Climate Change, 2007

My work also looks at our environment and how we care for it. The book, *Climate Change*, inspired by Al Gore's "An Inconvenient Truth", was made by painting pages with acrylic paste paint, scanning the pages into Photoshop and combining them with landscape photographs. The cover was inkjet printed onto a heavy copper foil with an adhesive backing, wrapped around wood and finished with a leather spine. Varia-

Climate Change ©2007, 7" x 5.5", Acrylic paste under-paintings with inkjet prints, drum leaf binding, and patinaed copper foil over wood with leather spine.

tions on the pages will likely become large-scale pieces in the future.

Viewpoint, 2007

For a quarter century my home and studio, also called "Viewpoint", has been on a small island south of Boston. The woods, meadows, fields, marshes, beaches, riverbanks, ponds and sky provide an ever-changing

with an almost infinite variety of possibilities. The title of the series was chosen to reference both my physical vantage point and the way in which I see my world. It is an elegy, a lament for a vanishing landscape. The series consists of 20 large format images printed on inkjet and uv cured flatbed printers. The book, *Viewpoint*, was made using images from the series.

Conclusion

My work is a process of examining issues and asking questions. It is an integrated mode of inquiry that

Inkjet prints over acrylic paste painting

links concept and media in an ongoing dialogue—a visible means of exploring meaning. As I work, I embed archetypal symbols and fragments of image and text in multiple layers of texture and meaning. I make comments but rarely draw conclusions or provide answers. Because I am easily bored and rarely use the same content or process more than once, I anticipate that my work will continue to evolve and change providing additional opportunities for challenge and reward.

Biography
Dorothy Simpson Krause is a painter, collage artist and printmake who incorporates digital mixed media into her art. Her work is exhibited regularly in galleries and museums and featured in numerous current periodicals and books. She is Professor Emeritus at Massachusetts College of Art where she founded the Computer Arts Center, and a member of Digital Atelier, an artist collaborative, with Bonny Lhotka and Karin Schminke. She is a frequent speaker at conferences and symposia and a consultant for manufacturers and distributors of products which may be used by fine artists.

Viewpoint ©2007 6" x 4.5" x .5" inkjet printed concertina book, cover of inkjet printed hand-woven fabric.

Gate to the Dunes ©2007 32" x 48" uv cured flat-bed print on polycarbonate over silver leaf

In July 1997, Krause organized "Digital Atelier: A printmaking studio for the 21st Century" at the Smithsonian American Art Museum and was an artist -in-residence there for 21 days. For that work she and her colleagues received a Smithsonian Technology in the Arts Award. That same year, she worked with a group of curators to help them envision the potential of digital printmaking in "Media for a New Millenium," a work-tank/think-shop organized by the Vinalhaven Graphic Arts Foundation. In June 2001, with Digital Atelier, Krause demonstrated digital printmaking techniques at the opening of the Brooklyn Museum of Art 27th Print National, *Digital: Printmaking Now*.

Krause is a co-author, with Karin Schminke and Bonny Lhotka, of *Digital Art Studio: Techniques for combining inkjet printing with traditional art materials*, Watson-Guptill 2004.

Her work can be seen at www.dotkrause.com.

THE MATRIX OF SENSATIONS
Donald Kuspit

I present to you what I think is a radical thesis: that the period of avant-garde painting, which officially began with the so-called color patches of paint in Manet's *Music in the Tuileries Gardens* in 1862, and climaxed almost a century later in the dynamic tachisme of European art informale and American modernist painting, was a time of transition from traditional analogue art to postmodern digital art, that is, to an art grounded in codes rather than images.

The status and significance of the image changes in postmodern digital art: the image becomes a secondary manifestation – a material epiphenomen, as it were – of the abstract code, which becomes the primary vehicle of creativity. Before, the creation of material images was the primary goal of visual art, and the immaterial code that guided the process was regarded as secondary. Now, the creation of the code – more broadly, the concept – becomes the primary creative act. The image no longer exists in its own right, but now exists only to make the invisible code visible, whatever the material medium. It makes no difference to the code whether it appears as a two- dimensional or three-dimensional image.
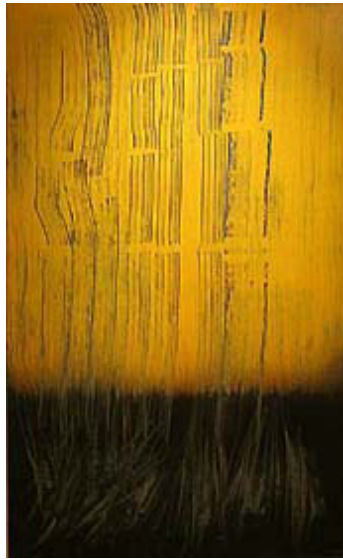
The transition to code creativity from image creativity is far from complete, let alone accepted as inevitable by all artists. In a sense, the resistance that it has met shows the seriousness with which it must be taken. But representational art, which is a mode of analogical thinking – that is, it assumes that what we see in the work of art corresponds to what we see in the actual world – will never be the same.

Hans Hartung, *T1964-H31 (1964)*

Willem de Kooning, *Untitled (1967)*

Pierre Soulages, *Peinture 25 Mai 1969 (1969)*

I. The Impressionists and the Objective World

The digitalization of representation makes mathematically manifest the matrix of sensations that inform and sustain representation. The matrix of sensations is never purely haptic or optic, but always impurely both: the haptic-gestural and optical-visual – supposedly the most primitive-raw and most sophisticated-refined modes of sense experience – are co-determinate in actual perceptual experience, however much one may be more acknowledged and given theoretical preference over the other. All one has to do is to look at a tachist painting to realize the truth of this. The digitalization of haptic-optic sensations affirms that they appear in sets, and that representation involves the integration of these sets.

The standard complaint against digital representation is that it loses the haptic quality of painted representation, thus making it less organic and intimate. Digital representation is supposedly more emotionally remote and intellectual than painted representation. But this is not necessarily so. The intensification of optical quality that digitalization brings with it more than compensates for the loss of the haptic dimension, all the more so because the digitalized sensation is in constant optical motion, generating an intimacy and vividness all its own.

Here is the key point: The traditional assumption that every appearance is grounded in objective reality, guaranteeing its own objectivity, is undermined by the discovery of this matrix of sensations. Above all, it is undermined by its digital articulation. Careful perception of the matrix of sensations, culminating in the realization that they

have a digital rationality, consistency and precision to them – that they are not as indeterminate and inexact as they seem to be when they first come into consciousness – subverts everyday perception, causing an epistemological crisis.

HelenFrankethaler, *Green Nest (1972)*

With this crisis comes a new sense and experience of the real: the revelation that the really real is what Cézanne called "vibrating sensations." They are paradoxically real – always in motion, they are never securely given. This is all the more true because these sensations exist relative to one another. Cézanne himself did not realize that there was a method to the "madness" of their vibration, although he suspected there was one. He analyzed his sensations in search of it, but he never found it, perhaps because he became more interested in the strange perceptual fact that it was only through their relationship to one another that they became "substantial." Whenever he searched for the One True Sensation, he found himself absorbed – and sometimes lost – in the labyrinthine relations of the matrix of sensations.

Paul Cézanne, *Orchard, Cote Saint-Denis, at Pontoise (1877)*

Serious attention to the matrix of sensations, almost as a perceptual end in itself, had already begun with Impressionism. The revolutionary discovery of the Impressionists was that every appearance is a sum of sensations that do not add up to a distinct, nameable whole. This irreducible plurality of sensation is the mercurial foundation of appearances (if such tenuous phenomena, seemingly more temporal than spatial, can be called a "foundation.") In painting after painting, the Impressionists showed appearances unraveling into sensations, with a spontaneity suggesting that appearances were inherently unstable.
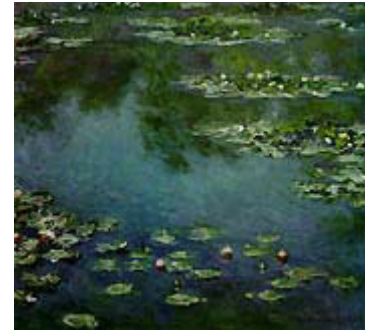
Claude Monet, *Waterlillies, Green Freflection, Left Part (1916)*

The Impressionists seemed eager to detach the matrix of sensations from the appearance it constituted, as though they recognized that no appearance could adequately represent an object. The ultimate implication of this was that no object was exactly real – but they never quite succeeded in achieving objectless perception. Despite the fact that they were perceptual revolutionaries, they continued to accept the traditional view that objects had a reality of their own independent of the sensations they "generated." Even Monet clung to this conventional ontology, as his last elusive water lilies show.
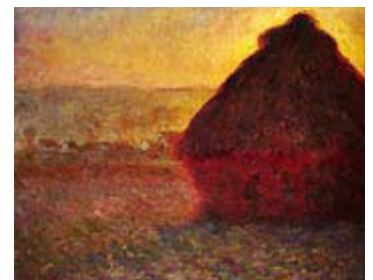
Claude Monet, *Mauele, Soleil Couchant (1891)*

The Impressionists remained attached to real objects, even as they stretched the conventions of perception to accommodate their novel vision of reality. Perhaps this was because they thought that to give up the representation of real objects was to be insane. I think that it was the terror of being left in a limbo of subjective sensations, with no sense of objective reality – the sense that, in these pictures, one was nowhere in particular and everywhere at once – that led to the initial public resistance to the Impressionists. I suggest that Monet's *Haystacks* imply that objective

Claude Monet, *Jardin de roses, Giverny (1925)*

reality is a straw man, which is why they met with defensive contempt and disbelief – until Kandinsky realized they had nothing to do with objective reality.

This, of course, doesn't mean that the later neutralization of the Impressionists as bright-eyed optimists undoes the violence they did to conventional perception. They were sane enough to remain attached to objects. For all the cunning and daring of their perception – for all their insistence on ephemeral sensation – they never completely surrendered to their sensations. From one perspective they were traditional painters with an ultra-refined sense of representation. From another, they were revolutionaries of perception with a conservative reluctance to trust their own revolution. They were divided against themselves, even as they went against the grain of established perception, following the convictions of their own consciousness.

II. Manet and the Violence of Sensation

The separation of the matrix of sensations from the representation of objects became complete with the development of non-objective art and the concept of non-objective sensation. The work of Kandinsky and Malevich announced the autonomy of the matrix of sensations, its existence as a realm unto itself, apart from any object representation.

Did the pioneering non-objectivists reify the matrix of sensations, idolizing it into an absolute? Perhaps, but their points were clear:

The matrix of sensations was more fundamental than any object.

The object was dispensed with.

The task of painting was no longer to represent objects but to present the matrix of sensations in all its exciting immediacy, to use Alfred North Whitehead's concept of "presentational immediacy." The matrix was no longer embedded or sedimented in objects, but exposed as objective in its own right.

This unique esthetic experience – it is the visionary core of modernist esthetics – not only radically transformed the representation of the object, but quickly led to the realization that both the representation and the object represented were visual "fabrications" or "constructions" – grand illusions, as it were. The "subject matter" of visual art was no longer the appearance of objects assumed to be unconditionally real, but the contingent reality of the matrix of sensations.
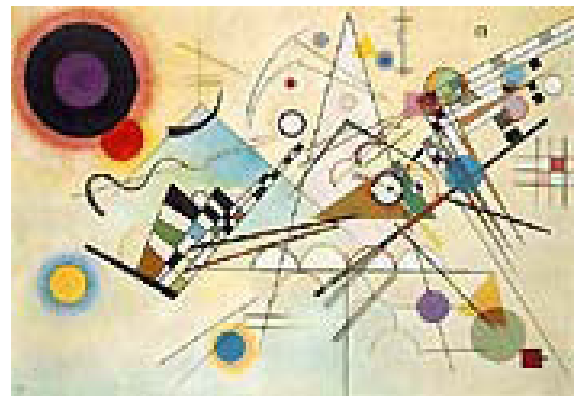
Kandinsky compared the slow but steady devolution,

Wassily Kandinsky, *Black Lines (1915)*

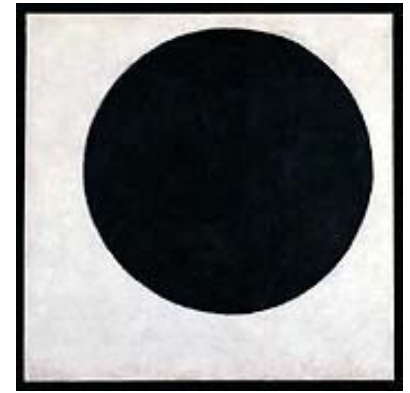Wassily Kandinsky, *Painting with White Form No. 166 (1915)*

Wassily Kandinsky, *Composition VIII (1925)*

Kasimir Malevich, *Suprematism (1916)*

Kasimir Malevich, *Projet Pour la décoracion du théâtre à Leningrad (1951)*

Kasimir Malevich, *Plane in Rotation, Called Black (1915)*

dissolution and near disappearance of the object in Impressionism to the modern discovery that the atom was not a solid, one- dimensional object but a complex structure of vibrating particles. And he was right: Art and science were on the same exciting wavelength. Representation could no longer be taken for granted, for objects could no longer be taken for granted: They were soft not hard, implying that representation could never again be as solid it was in traditional art. It was always "compromised" by unruly sensations. It could never be more than ironically valid because it was never more than conditionally cohesive and coherent, that is, never more than a slippery configuration of provocative sensations. Every representation was flawed by the sensations that undermined its integrity and perfection even as they gave it an uncanny vitality. They seemed to have an inner necessity of their own, to use Kandinsky's term. The matrix of sensations was other-worldly and immediate at once.

The modernist esthetic point is that there is no such thing as passive vision, as seemed to be the case in traditional art. There is only active envisioning, that is, the creative construction of a vision from a certain perceptual perspective. It is invariably informed by a certain Weltanschauung, however unconscious. It is this active envisioning or configuring – a tentative imposition of "conformity" upon "iconoclastic" sensations – that makes a work of art seem "original" and inspiring rather than matter-of-fact and inert. The ironical unification of the matrix of sensations in a work of art gives it a kind of depth, which is why we often experience it as a living subject rather than a dead object.

To understand the implications of this, we have to go back to the way people experienced the inaugural event of this "digitization" of culture, the proto-Impressionist *Music in the Tuileries Gardens*. Manet's modern mania for seeing things as a patchwork of gestures – which is the way it was described in his own day – has become the postmodern mania for seeing things as a grid of pixels.

Manet noted that one viewer was sufficiently upset by *Music in the Tuileries Gardens* that he "threaten [ed] violence" against it. It was as though he was responding in kind to the violence Manet had done to things. The 19th century viewer was outraged because he experienced as destructive precisely what the 20th century viewer intellectualizes as ingeniously ambiguous – the way that *Music* seems to deconstruct the scene it represents in the act of constructing it, leaving the viewer in a perceptual lurch and, more traumatically, bringing representation itself into question. It was destructive not only of the scene but of the sublimity of art itself: representation became a problematic patchwork, de-idealizing the human figures in the process. Many of these figures were Manet's friends; they certainly got a raw deal being treated as patches. Is *Music in the Tulieries* a satire, however unwittingly? There does seem to be something spiteful and malevolent about it.

In the coldness of Manet's work, art seems to have lost its humanizing purpose – idealization is an effort to show the best in human beings – suggesting that it is the beginning of what Ortega y Gasset called its modern "dehumanization." The 19th century viewer was right, but he didn't understand why: the matrix of sensations has erupted into visibility in *Music in the Tu-*

of mathematically sophisticated pixels. Manet's hand-made patchwork is a kind of improvised coding of sensations, and as such the eccentric beginning of their systematic digitalization and arrangement in a grid. The vibrating points of color in Seurat's *A Sunday Afternoon on the Island of La Grande Jatte* (1884-86) are the crucial next step in the development of the digitalized

Edouard Manet, *Music in the Tuileries Gardens (1862)*

Georges Seurat, *A Sunday on La Grande Jatte — 1884 (1884-1886)*

Edouard Manet, detail from *Music in the Tuileries Gardens (1862)*

Georges Seurat, detail from *A Sunday on La Grande Jatte — 1884 (1884-1886)*

ileries Gardens, subtly undermining the scene. Manet's figures have been petrified into "sensational" patches – that is, they have become part of an irresistible matrix of sensations in which they only superficially hold their own. The flatness of the patches gives them a facade-like quality, suggesting that there is nothing behind them.

III. Seurat and Digital Dehumanization
Manet's flashy patches are the primitive prototypes

sensations we call pixels.

Indeed, in my opinion Seurat's pointillism makes him the first digital artist. For Seurat painting was a systematic science. He refined the touchy-feely Impressionist color patch into an electromagnetic point of precise color – a pixel in principle if not in technical fact. He organized his points in mosaic-like representations (I am ready to argue that his pointillist mosaic is the prototype for the digitalized grid of the comput-

er screen), which gave them a completely different reality effect than that which occurs in traditional realist representation. He understood that there was nothing random about color pixels: They obeyed the law of complementary colors. Seurat was the first artist to understand that vibrating sensations are structured in themselves as well as details in a visual structure. To be a really modern artist, a scientific artist, meant to make these structures – the hidden code of color, as it were – visible. The more visible the coded matrix of sensations became, the more hallucinatory the representation seems, which is what happens in *La Grande Jatte*. Indeed, the more structured the vividness of the sensations seemed, the more the picture was totalized as an eternal pattern of vibrating sensations, the more ghost-like the objects represented seemed.

La Grande Jatte brings representation into greater question than *Music in the Tuileries Gardens*. Seurat's pulverization of representation into a matrix, systematically organized, suggests that doubt and suspicion of representation are built into *La Grande Jatte*. Perspective continues to buttress the scene, like a backbone, but the perspective is beginning to buckle and flatten – collapse – under the enormous weight of the pulsing sensations. Seurat's painting is a catastrophe in the making, a virtual apocalypse, indeed, the first picture that explicitly presents itself as a virtual reality, and that "argues" that reality is always virtual – never really real, or, if one wants, it argues that the virtual is the really real. His figures are full-fledged phantoms, delicate, thin gossamers, no longer clumsy, thick patches.

Looking at *La Grande Jatte*, we are witnessing the death of the order of objects and the birth of the matrix of sensations as a unified field. (Strange as it may be to say so, the same thing is already underway in what Breton called Leonardo's "paranoid wall": however much the wall generates images or illusions of objects, it stubbornly remains a matrix of material sensations. I think the same can be said of Leonardo's more immaterial sfumato, although that may be forcing the point. I mention Leonardo because I think that if he was alive today he would be a cutting edge digital artist and computer scientist.)

Seurat's island is a much more unnerving place than Manet's garden.

Both are urban sanctuaries, but Seurat's park is a lonely island in Hades, a deceptively sunny modern version of Böcklin's ominously dark, classical *Island of the Dead* (1880), in my (perhaps perverse) opinion. On the other hand, Manet's park is a false paradise, a limbo of the self-deceived rather than the realm of the living dead. One can escape from Manet's claustro-

Georges Seurat, detail from *A Sunday on La Grande Jatte — 1884 (1884-1886)*
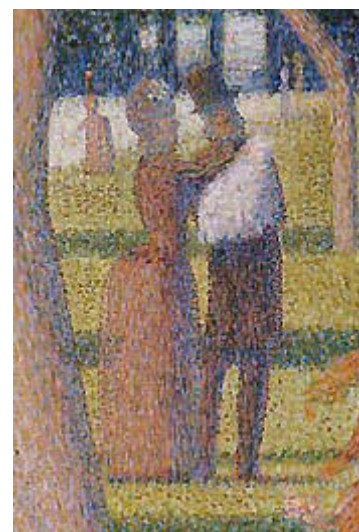
Georges Seurat, details from *A Sunday on La Grande Jatte — 1884 (1884-1886)*

Leonardo da Vinci, *The Virgin and Child with St. Anne and the Young St. John the Baptist (ca.1501)*

Giacomo Ballai, *The Street Light-Study of Light (1909)*

phobic Tuileries into the city beyond it – a peculiarly more private space because of its anonymity, allowing one to move in it as though unseen – but there is no escape from *La Grande Jatte* to the shining white city in the distance.

Once one is on *La Grande Jatte,* one freezes in place, flattening into a luminous shadow. One becomes ironically eternal in Seurat's art, all the more so because one has become an insubstantial composite of sensations, an aggregation of Lucretian atoms of color filling the infinite void. One becomes a complicated configuration of atom-like sensations in endless motion. One disintegrates into a blooming, buzzing confusion – virtual chaos – of sensations, to use William James's phrase. But sensations that nonetheless seem to somehow be held together, if not stuck together and fully integrated. If art is absence as presence, then the absented people in Seurat's picture – none of them are the famous, sensational individuals Manet depicted (among whom are Baudelaire, Gautier and Manet himself) – have an ironically more sensational presence than they ever had in life.

Manet's color patches look like accidents compared to Seurat's points of color, all the more so because Manet used the patches to accent contingent appearances, giving them a certain expressive power. Indeed, the eccentric patches had a certain importunate emotionality to them. At the same time, Manet used his patches defensively, as his account of his experience of his father's naked body as a patchwork of col-

Photograph of the right side of the ENIAC as seen from the entrance to the machine

ors (similar to Monet's experience of his dead wife's face) suggests. In sharp contrast, Seurat realized that sensation was emotionally neutral, however much it may be used for emotional effect. Its "feelinglessness" correlates with its "scientific" rationality. Whatever expressive edge *La Grande Jatte* has comes from the representation, that is, the integration of the bits of color to convey an everyday scene, defamiliarizing it by "sensationalizing" it. The important point about Seurat is that he cracks the code of sensation, not that he offers us a certain tantalizing, evocative glimpse of modern life. For him, light and color vibrations were a kind of inexpressive Morse code sent out by an indifferent cosmos – preparing the way for the cosmic aura of luminous color in Balla's crypto-scientific *Street Light*, 1909.

IV: Cybernetics and Double Vision

Approximately twenty years lie between Manet's discovery of the matrix of sensations and Seurat's proto-digitalization of it, and again between Seurat's visualization of reality as virtual and Balla's taking virtual reality for granted as an electromagnetic field of force. But one had to wait another forty years and move from Europe to America for true digital representation to appear.

Its development in the 1950s was inseparable from the development of the computer. In 1945, Vannevar Bush, an American Army scientist, published an article proposing the development of a "Memex," an analogue computer. As Christiane Paul writes, it was "a desk with translucent screens that would allow users to browse documents and create their own trail through a body of documentation." (1) Bush's experimental device was never built, but it was the prototype of the bank of monitors used to store, retrieve and display information commonly used today. It was also in the 1940s that the American scientist Norbert Wiener coined the term "cybernetics" (from the Greek term meaning "governor" or "steersman.") The development of cybernetics, the science of information control and organization, is inseparable from the development of the digital computer.

Arnold Böcklin, *Island of the Dead (1880)*
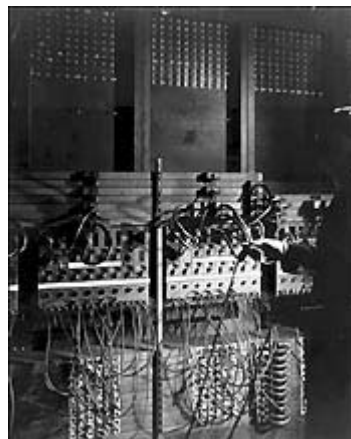
Computer scientist Harry Huskey holding a wire of the ENIAC
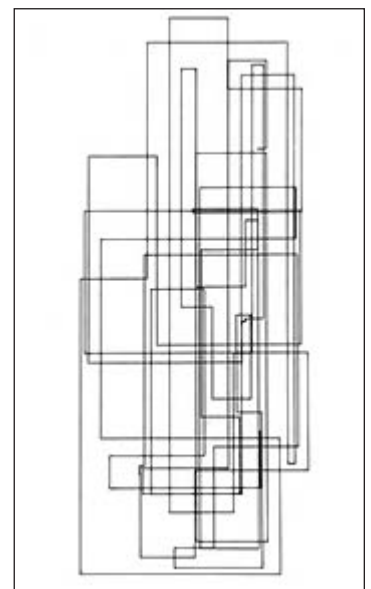
A. Michael Noll, *Vertical-Horizontal Number Three (1964)*

The first true digital computer was built in 1946 at the University of Pennsylvania. ENIAC, or Electronic Numerical Integrator and Computer, took up a whole room. In 1951, the first commercially available digital computer, UNIAC, was patented. It was able to process numerical as well as textual data. In 1961, the American Theodor Nelson invented the words "hypertext" and "hypermedia" for a space of writing and reading where texts, images and sounds could be electronically interconnected and linked by anyone contributing to a networked "docuverse."

Finally, in 1968 the concepts of "information space" and "interface" appeared. Paul writes:

Douglas Engelbart from the Stanford Research Institute introduced the ideas of bitmapping, windows, and direct manipulation through a mouse. His concept of bitmapping was groundbreaking in that it established a connection between the electrons floating through processor and an image on the computer screen. A computer processes in pulses of electricity that manifest themselves in either an 'on' or 'off' state, commonly referred to as the binaries 'one' and 'zero'. In bitmapping, each pixel of the computer screen is assigned to small units of the computer's memory, bits, which can also manifest themselves as 'on' or 'off' and can be described as 'zero' or 'one.' The computer screen could thus be imagined as a grid of pixels that are either on or off, lit up or dark, and that create a
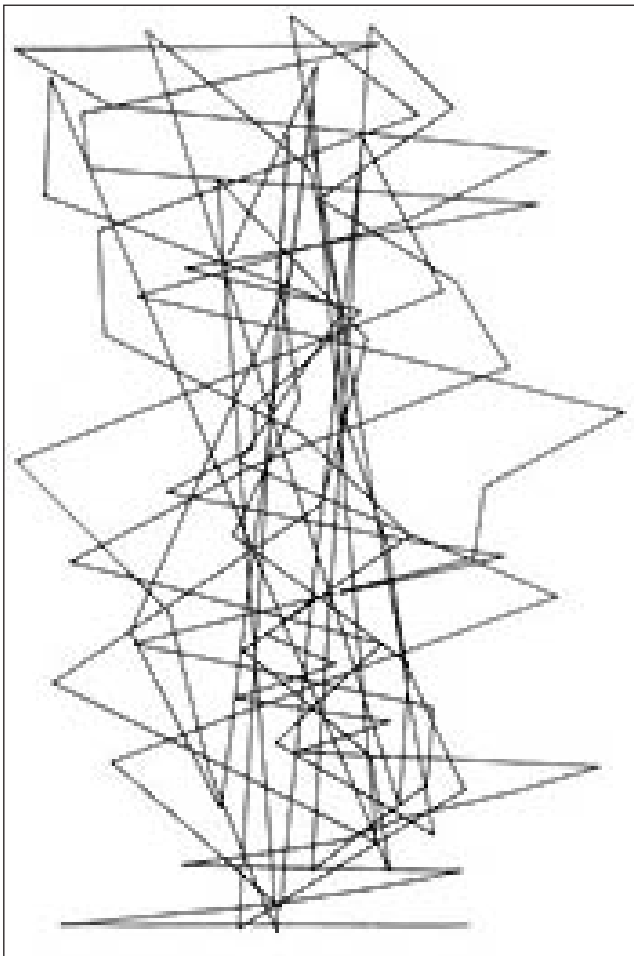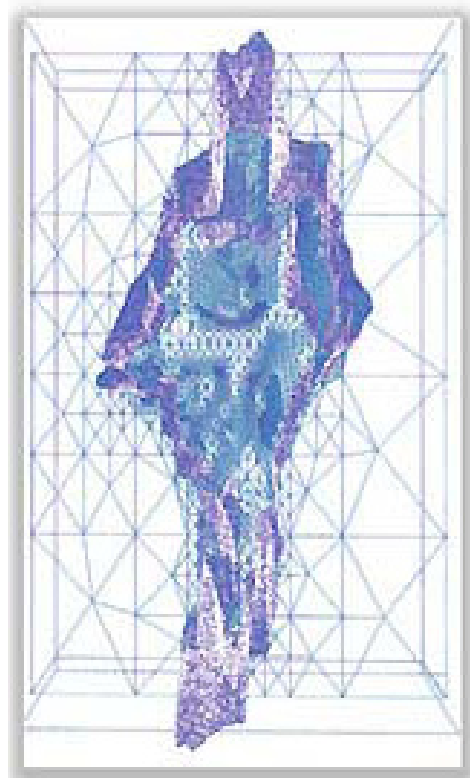
A. Michael Noll, *Gaussian-Quadradic (1963)*

Marcel Duchamp, *Nude Descending a Staircase (1912)*

Gerhard Richter, *Ema (Nude on a Staricase) (1966)*

Michael Somoroff, *Query II (2004). Silk-screen on optical-mounted digital photogenic print on 1/2" acrylic*

Michael Somoroff, *Query IV (2004)*

Michael Somoroff, *Query II (2004). Photogenic digital print.*

two-dimensional space. The direct manipulation of this space by pointing or dragging was made possible by Engelbart's invention of the mouse, the extension of the user's hand into data- space.

With the introduction of the popular Apple Macintosh in 1983, digital art was ready to be made: Seurat's bits of color could be "realized" as electronic bits of information. Computers had been used to generate images in the 1960s, but they were more of scientific than esthetic interest, however much, as Christiane Paul says, "they captured the essential esthetics of the digital medium in outlining the basic mathematical functions that drive any process of 'digital drawing'."

integration of the bits into an image – a uniform matrix of sensations – makes them even more sensational. However conventionally abstract or realistic, the digital image instantly reveals itself as the coded "representation" of bits of sensationalized information. One instantly sees through the digital image to the electronic bits of sensation that inform it, and through them to the code they conform to; unlike the painted image, the digital image is completely transparent. (Such a matrix of bits and the code that shapes them are already transparent in Seurat's La Grande Jatte, which is why I regard it as the first digital image.) A digital image is a double vision: a code in the process of crystallizing into an image, and a self- regulating

Pablo Picasso, *Girl Before a Mirror (1932)*
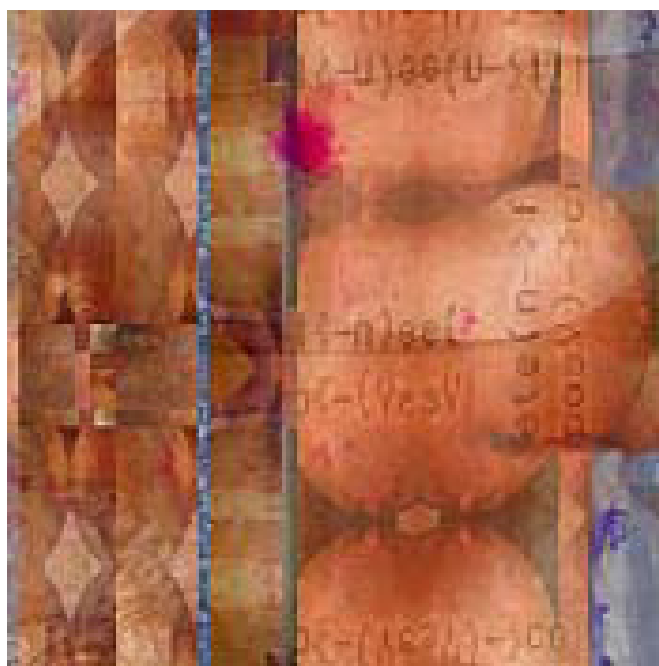
Joseph Nechvatal, *PeccadillO alfrescO (2004).*
Computer-robotic assisted acrylic on canvas.

But the early "Computer-Generated Pictures" exhibited at the Howard Wise Gallery in 1965 were not esthetically and conceptually innovative, however abstract. They did not offer a new integration of the esthetic and the conceptual – a new digital heightening of sense experience, correlate with the new way of conceptualizing consciousness as the codification of experience in the form of electric bits of information. In digital art, every bit of information is inherently "sensational" by reason of its electronic character. The

matrix of "electrifying" sensations. It is because the sensations electronically vibrate that the digital image can never be a reification of the matrix and the code.

V: Somoroff and the Platonic Nude
Michael Somoroff's computer generated digital video Query (2004) is a consummate example of such esthetic-conceptual interdependence. Somoroff's work, which is modeled on Duchamp's famous painting Nude Descending a Staircase (1912) as well as on Gerhard Richter's 1960 photo-realist painting of

the same subject matter, shows the transition from analogue to digital art – and their ironic simultaneity – with epitomizing exactitude. The nude at the top of the staircase is an analogue representation; by the time she reaches the bottom of the staircase she is a digital representation, more particularly, a sensation-saturated digital representation-codification of the time it took her to descend the staircase.

Somoroff in effect combines Duchamp's mechanical nude and Richter's organic nude, transforming them into "electrifying" constructions, that is, electronic bit-maps. He also modifies both paintings by separating the blur from the nude and displacing it to the descent,
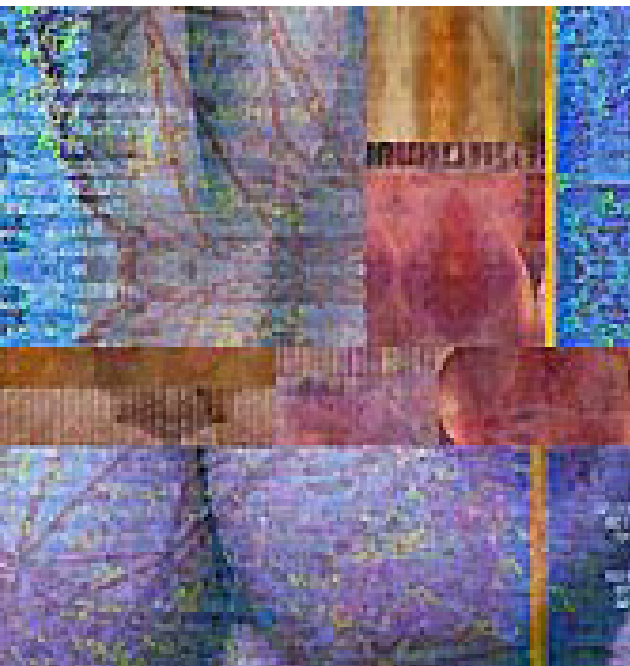
Joseph Nechvatal, *OrgasmO autOmOderO (2004)*.
Computer-robotic assisted acrylic on canvas.

thus giving the movement of the descent a certain independence from the descending figure. Perhaps above all, the blur becomes a temporal emblem rather a spatial marker, which is what it is in both Duchamp and Richter: it becomes a trace of time rather than a measure of space. The fixed space of the staircase – the pedestal that supports the nude and frames her descent – is a Newtonian anachronism in a changing Einsteinean environment. For Somoroff, the temporal movement is autonomous and "transcendent" rather than the figure who seems to transcend her environ-

ment by moving through it. It's worth noting that the temporal movement in Somoroff's piece is unusually complex because it integrates opposing experiences of time: the sense of personally lived and thus internal time, in which time is experienced as a flexible duration, and as such organically alive; and the sense of impersonally given and thus external time, socially imposed and inherently abstract – time cognized as a mechanical succession of steps, obeying an inflexible law, which is what the rigidly geometrical staircase represents.

Thus there are two nudes. On the one hand, there is the material nude viewed in the mode of everyday visibility, and thus perceived as conventionally real. This is all the more the case because she is sexually stimulating to the so-called male gaze. She seems to cultivate this by her narcissistic display of herself as an object of desire. She descends the staircase like a goddess, ready to bestow sexual blessings when she reaches the bottom. On the other hand, there is the peculiarly magical, temporally paradigmatic, math-ematically edifying, all-but-invisible abstract nude viewed in an intellectual epiphany – the altered consciousness of a visionary. Her existence is certainly intellectual, but she is also sensational, as her colorful-ness – spontaneously generated by the computer used to construct the work – suggests. One might say that she is geometrically sensational, that is, the matrix of sensations that was once her flesh-and-blood body has been given geometrical form.

Is Somoroff's work an ironic new version of Titian's sacred and profane love? Is the geometrical nude an allegorical personification of sacred love? Is the flesh and blood nude an illustration of profane love in action, as the fact that she is descending the staircase to meet the spectator suggests? Does the moving flesh and blood nude symbolize the vita activa, that is, the process of becoming, and the geometrical nude symbolize the vita contemplativa, that is, the mathematical truth of being?

The point I want to make is that the flesh-and-blood nude and the geometrical nude are mirror images – more particularly, translations – of each other. Nothing is distorted or lost in translation: the realistic im-

age and the abstract image are exact equivalents. The latter codifies the former even as the former exemplifies the latter, that is, embodies the code. Nonetheless, I want to suggest that the heavenly nude – the blueprint nude, as it were – is more beautiful and perfect than the earthly nude – the concretely "realized" nude – however beautiful and perfect her body is. For the geometrical nude will not decay over time, while the flesh-and-blood nude will, as her descent in time suggests. We see the nude in a double mimesis or
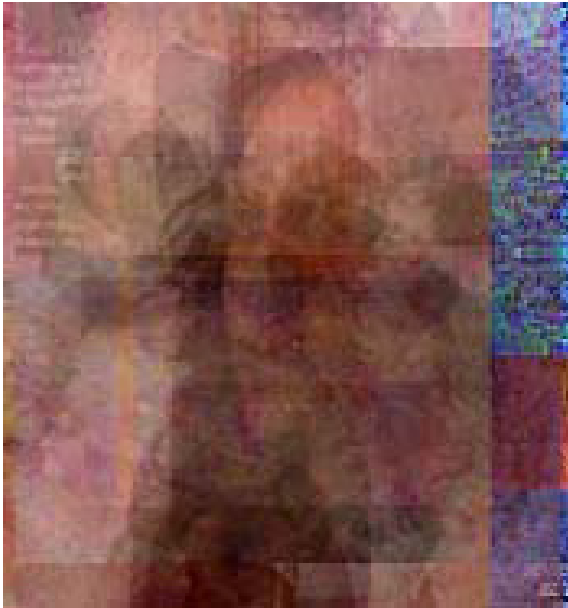
Joseph Nechvatal, *Ebon Fisher meets G.H. meets Steve Miller meets Tina La Porta (2005).*
Computer-robotic assisted acrylic on canvas

Peter Campus, *Video Ergo Sum: dream (1999). Digital video.*
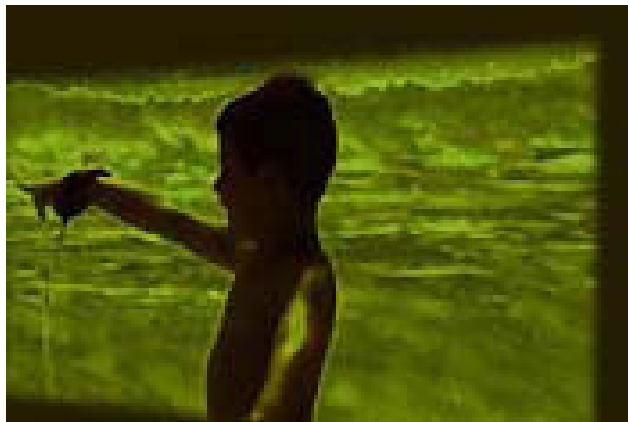
Peter Campus, *baruch the blessed (2004). Digital video.*

Peter Campus, *el Viejo (2004). Digital video.*

double take, and in dialectical relationship with herself – perhaps an ironical display of narcissism, as in Picasso's Girl Before A Mirror (1932) (which is her true self, which her false self?) – but the temporal odds are stacked against the flesh and blood nude. Perhaps the point can be made more clearly by introducing Kenneth Clark's distinction between the naked figure, with its realistic body, and the nude figure, with its idealized body. The ideal always outlasts the real, however much the ideal may be an illusion – which is what Somoroff's geometrical nude looks like. Only she isn't an illusion – she's mathematically real, and as such ideal, like the universal algebra basic to computer processing.

The paradoxical point is that the geometrical code is more substantial than the material body. I am even ready to argue that the coded two-dimensional nude is more ingeniously erotic than the uncoded three-dimensional nude; the former is in principle a painting, the latter a sculpture – despite the fact that the latter is

Hands Breder, *Mass in A-Minor for Suitcases (2000)*. *Intermedia performance.*

more directly sexual in import. In any case, Somoroff's work is completely "realized" only when the spectator sees both nudes simultaneously while tracing their splitting and recognizing their difference, and above all their reversible transformation into another. Only when one sees their inner unity and even sameness – only when one realizes that the geometrical skeleton key fits into the flesh and blood body, unlocking its mystery while representing it – does Somoroff's work become a seamless whole. Only when the difference between the nudes is resolved in a visionary experience – when the two are seen as dramatically one in a kind of mystical marriage or correspondence, indicating that their difference is understood to be superficial and false, apparent and trivial – does the nude

truly become herself.

The creative apperception of the unity of the conventionally physical and unconventionally abstract representations of the nude – with the realization that neither is esthetically and/or ontologically privileged over the other, indicating that it is impossible to determine which is the real nude (which appearance is true to her, which is false to her) – confirms Duchamp's ironical view, stated in his 1946 essay "The Creative Act," that the work of art needs a critical consciousness – a sort of superordinate perspective, however hypothetical – to complete it. Is it possible to say that Somoroff's temporal cognition of the spatial nude indicates his critical detachment from her body, and that this detachment – signaled by the geometricization of the body, transforming it into a kind of Platonic idea, as though the body was seen sub specie aeternitatis – is made uniquely possible by the computer? Computer processing is an efficient way of distilling an essence from an existence. Computer processing is higher consciousness in action, suggesting that the computer is an extension of the mind, the process of mentalization made transparent.

VI: Digital Artists and the New Creative Renaissance

The most important aspect of digital art is that it makes the creative act – creative functioning or the creative process – explicit as it has never been before in any kind of art, indeed, in the entire history of art.

It has been argued that avant-garde art at its most radical is an attempt to articulate the creative process

Hans Breder, *Pressure II (2003). DVD installation.*

Hans Breder, *Kate (2005). Inkjet print.*

as such, and that it succeeds especially in action painting. But in virtually every case – perhaps with the exception of geometrical abstraction, and even then it is not clear that this is an exception – the creative process is understood as a deeply emotional, thoroughly subjective process. Creative process and self-expression are assumed to be inseparable – one is presumably creative to express oneself, which certainly seems to be the case in Expressionism, Cubism, Surrealism and even, however covertly, in Suprematism and De Stijl.

But modern creativity theory argues that the creative process is as much an intellectual and social process as an emotional and individual process. As Dean Keith Simonton writes, "creativity involves the participation of chance processes both in the origination of new ideas and in the social acceptance of these ideas by others... probabilistic or stochastic mechanisms operate at fundamental levels to generate original conceptions and to isolate the subset of these ideas that are judged adaptive by others – and hence deserving of the designation 'creative.'" (2)

Digital art can be used to make these chance processes vividly evident, as in Joseph Nechvatal's computer virus paintings. It can also be used to select from the "heterogenous variations... those that feature adaptive fit," as in Peter Campus' digital video works. In contrast to the former, which are concerned with "generating ideational variation," the latter imply that there are "somewhat stable criteria by which variations that offer viable solutions to the problem at hand are separated from those that embody no advance and hence are useless." Taken together, Nechvatal and Campus' digital works spell out the alpha and omega of the creative process. Above all, they make it clear that, however much we may understand the creative process subjectively – and we can understand it subjectively, for, as Simonton writes, the "fundamental units... manipulated in the creative process are such 'psychological entities' as the sensations that we attend to, the emotions that we experience, and the diverse cognitive schemata, ideas, concepts, or recollections that we can retrieve from long-term memory" – it remains objective.

There are more possibilities of freedom in digital art – that is, the "mental elements" are "free[r] to enter into various combinations" and thus to be manipulated – than in architecture, painting and sculpture. This is the reason we now have buildings, two-dimensional pictures and three-dimensional objects being modeled and generated by the digital mechanisms of the computer and manufactured by computer-controlled machines.

The computer has enormously expanded creativity by allowing for a greater exploration of chance, and thus the creation of more complex esthetic "permutations" – different combinations of identical elements – than traditional art has ever created, indeed, allowed or even thought of. It has also given us a more efficient means of manufacturing art that never existed before.

Most crucially, the computer extends the horizon of creativity infinitely – certainly compared to the finite creativity of pre-computer art – by allowing the artist to tread a fine line between unstable and stable permutations, sometimes sharply differentiating them, sometimes blurring the difference between them. Thus, Nechvatal presents unstable permutations – which Simonton would call "aggregates" – and Campus presents relatively stable permutations – which Simonton would name "configurations." But Nechvatal's aggregates have a stable predictability, and Campus' configurations have an unstablity indicated by their mercurial character.

The computer makes it clear that "aggregates" and "configurations" exist on the same continuum of representation. Gestural Abstraction's unstable aggregates and Geometrical Abstraction's stable configurations involve the same fundamental units, in the former case unintegrated in a seemingly "chance confluence," in the latter case "interrelated" in a "patterned whole." Even more transparently, the computer makes it clear that, in Simonton's words, "the permutation process continues without pause." And, one might add, computer creativity is infinitely elastic – so much so that it affords the opportunity for making a new kind of Gesamtkunstwerk, a single work of art which incorporates all the other arts, neither exclusively visual

nor verbal nor auditory, neither exclusively spatial nor temporal, but all of these at once.

Hans Breder's latest digital video work, which involves poetry, painting, music and body sculpture in exquisitely concentrated and epitomizing form, is such a Gesamtkunstwerk masterpiece, on a par, I want to argue, with the portable personal altarpieces that existed in the Middle Ages. The portable computer, and the portable digital art it makes possible – and perhaps above all digital art's existence in electronic form, making it easy to communicate-transmit-distribute – is the intimate shrine of personal creativity. Indeed, not being property the way the physical work of art is, the digital work of art has a peculiarly disembodied, "transcendental" status.

Let me go, perhaps absurdly, further: the grid of the computer screen is the postmodern realization of the traditional perspective grid that isolated the figure in sacred space. It involves the same universal geometry, with its ideal proportions – refined with great precision – that appears in Renaissance architecture, with its grid-like plans and facades, suggesting that the computer signals a new Renaissance of art-making. Like the Renaissance artist, the digital artist must be a learned craftsman – an artist who has to learn a craft that is at once material and intellectual – at atime when a good deal of art seems craftless and pseudo-intellectual, that is, not rigorously logical in-

Hans Breder, *Advice from the Grave (2003). DVD installation.*


Hans Breder, *A Dance (2003). DVD installation.*

wardly and outwardly. Digital art offers new hope for art at a time when the traditional media seem to have exhausted their potential – however useful they undoubtedly are for individual expression and however socially meaningful they remain – and thus a new way of revitalizing the traditional media. This is inseparable from the rationalization of the matrix of vibrating sensations – each is what Husserl called a "now-point" or "impression" of time, or what Leibniz called a petite perception on a temporal continuum – into the grid of pixels.

Such hyper-objectification permits their manipulative combination in innumerable configurations. However governed by what might be called the rules of the computer game, such deliberate artistic manipulation – distinct from the discovery of pre-existing patterns of vibrating sensations in Manet and Cézanne as well as in Soutine and Balla – is peculiarly free and playful. No longer is the artist confined to familiar configurations. The artist can invent fantastic new configurations alive with unusually exciting sensations. Digital art can thus affect a profound alteration of consciousness. The computer is not a new instrument for making an old architecture, painting and sculpture; it offers the opportunity for a new kind of architecture, painting and sculpture.

Digital architecture, digital painting and digital sculpture – all premised on digital drawing using the "in-
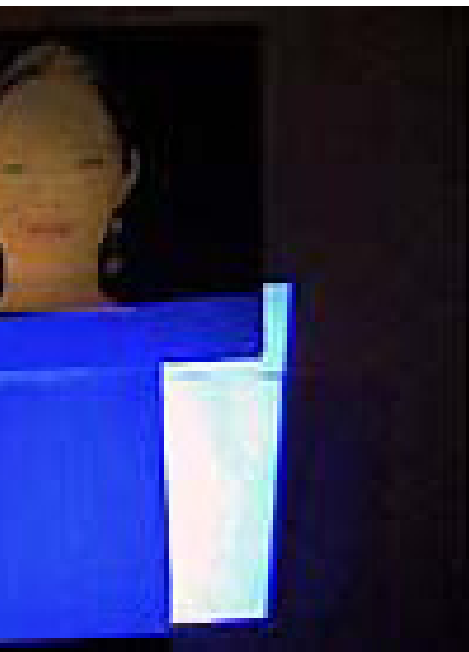
Hans Breder, *No Word: No Thing (2005). DVD installation.*

grained" algorithms of the computer – are new modes of art with unexpected and still incompletely explored creative, esthetic and visionary potential.

Notes

(1) Christiane Paul, *Digital Art* (London and New York: Thames and Hudson, 2003), p. 8. All subsequent quotations referring to computers are from Paul.
(2) Dean Keith Simonton, "Creativity, Leadership, and Chance," *The Nature of Creativity: Contemporary Psychological Perspectives*, ed. Peter Campus, Robert J. Sternberg (Cambridge, UK and New York: Cambridge University Press, 1988), p. 368. All subsequent quotations referring to creativity are from Simonton.

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Leda Marritz joins YLEM as the newest designer responsible for layout of the Ylem Journal. After graduating from Brown University with a degree in Comparative Literature in 2004 she moved to New York (where she also grew up, conveniently. Or inconveniently.) In New York she spent two years at Workman Publishing before decamping for San Francisco in August 2006. She admits to having very little background in science fiction, computers, or technology, but feels she is sufficiently geeky in other ways that compensate for it. For her day job, she helps to make cities more hospitable environments for trees.

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YLEM
JOURNAL

artists using science and technology

ylem [pronounced eye-lem]
-noun

1. Greek: for the exploding mass from which the universe emerged; the material of the universe prior to creation.

YLEM is an international organization of artists, scientists, authors, curators, educators and art enthusiasts who explore the Intersection of Arts and Sciences. Science and Technology are driving forces in contemporary culture, and YLEM members strive to bring the humanizing and unifying forces of art to this arena. YLEM members work in contemporary media such as Computer-Based Art, Kinetic Sculpture, Interactive Multimedia, Robotics, 3D Media, Film and Video.

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